

Great strides have been made in reducing malnutrition over the past few decades. In 1980 almost half the children under five in developing countries suffered from stunting (abnormally low height for one's age)—one of the main indicators of poor nutrition. By 2000 one-third did, a substantial reduction by any measure. Nevertheless, 182 million children below five remain stunted—a totally unacceptable situation. To make matters worse,

ERADICATING

progress in reducing stunting has slowed in the past two decades, and the number of stunted children in Africa has grown. In Eastern Africa the percentage of children who are stunted is rising. If current trends continue, the goal of halving the number of undernourished people by the year 2015, set at the World Food Summit in 1996, cannot be met.

How can malnutrition be reduced fast enough to meet humanitarian goals such as the one set at the World Food Summit? Some people argue that the way to meet nutrition targets is to stimulate greater economic growth and higher incomes for poor people. Because malnutrition and poverty often go hand in hand, it is argued, rates of malnutrition provide neither an independent perspective on poverty nor a basis for reducing malnutrition that is distinct from one for reducing poverty.

Others, however, argue that income growth is a blunt instrument for reducing malnutrition and that more resources must be allocated to direct nutrition programs such as micronutrient supplementation, food fortification, and community-based initiatives that change dietary and care behaviors.

What do the data say about how far income growth can take us?



MALNUTRITION

INCOME GROWTH OR NUTRITION PROGRAMS?

Lawrence Haddad and Harold Alderman

POVERTY AND MALNUTRITION ARE LINKED BUT ARE NOT IDENTICAL

Poverty and malnutrition often afflict the same beleaguered groups of people. In fact, rates of malnutrition are sometimes used as indicators of poverty. In general, more income leads to better nutrition over time. Increased income usually enables poor families to get better access to the things that matter for good nutrition: food of sufficient quantity and quality, enough time for mothers to get and use good information on child feeding and hygiene, adequate supplies of clean water, and sufficient preventive and curative health care of good quality.

But, though the relationship between poverty and malnutrition is potentially strong, if families do not spend their increased income on the factors that determine good nutrition—better food, care, and health—then malnutrition is unlikely to decrease. For example, if extra income does nothing to empower women, then nutrition levels may not improve. When women have control over increased income, children's nutritional status tends to improve

more quickly. Increased income may also fail to enhance nutritional status if women (and men) have to work longer and harder to get that income, thus providing less care to children. And more income may not lead to better food, care, and health if roads, markets, water supply, and health clinics are unavailable. The potential disconnect between poverty and nutrition means that poor people are not always malnourished, and malnourished people are not always poor. Figure 1 shows that in three of five countries studied, more than 40 percent of nonpoor households with preschoolers contain at least one who is stunted.

Figure 2 reveals that there is a strong and regular relationship of malnutrition to gross domestic product (GDP). Nevertheless malnutrition rates vary widely even among the poorest countries. In the 1990s the share of underweight preschool children in countries that had a GDP per capita below US\$1,000 ranged from 20 to 62 percent. So, is it possible for income growth to lead to a substantial reduction in malnutrition within a generation?



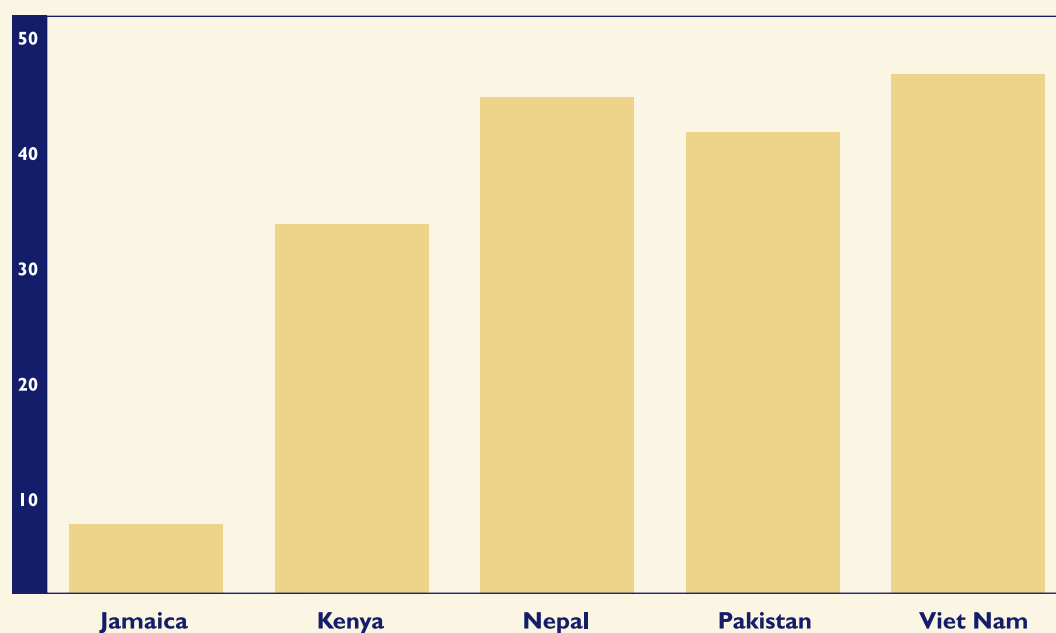
Recent research from IFPRI and its partners shows the potential for income growth to improve nutritional status. Encouragingly, income growth indeed contributes to improved nutritional status in 12 countries studied. Figure 3 charts how children's nutritional status would improve in these countries if per capita income grew by 5 percent a year. This pattern is consistent with analysis of cross-country data. Nevertheless, it would take many years of high growth—5 percent is ambitious by historical standards—to reduce the prevalence of underweight children even by 50 percent and then only in Morocco. Income growth alone will not result in the halving of preschool malnutrition in the developing world by 2020—a goal less ambitious than the World Food Summit target.

NUTRITION PROGRAMS CAN REDUCE MALNUTRITION FASTER

Given the situation described, direct interventions are needed to reduce malnutrition in the short to medium term. Nutrition programs such as vitamin A, iron, and multiple micronutrient supplementation; community-based care promotion to improve infant feeding and hygiene; food-based interventions that promote dietary diversity; fortification of foodstuffs consumed by malnourished people, either through industrial processes or through traditional plant breeding; and food supplementation for undernourished young women are all more important than ever. These programs need to be better funded and staffed, and better managed as they scale up, in order to halve malnutrition within the next generation.

Figure 1. Malnutrition in nonpoor households

Percent of nonpoor households with at least one stunted preschooler



Source: S. Appleton and L. Song, *Income and human development at the household level: Evidence from 6 countries, background paper for World Development Report 2000/01* (Economics Department, University of Bath, U.K., 1999).



By substantially cutting malnutrition in the next generation, these direct interventions will also sow the seeds for better nutrition in the generation after that. As Stuart Gillespie and Rafael Flores explain in the accompanying essay, nutritional status spans generations—a girl with good nutrition will grow into a healthier, stronger woman, and a woman with good nutrition will give her children a healthier start in life.

BETTER NUTRITION WILL RAISE INCOME

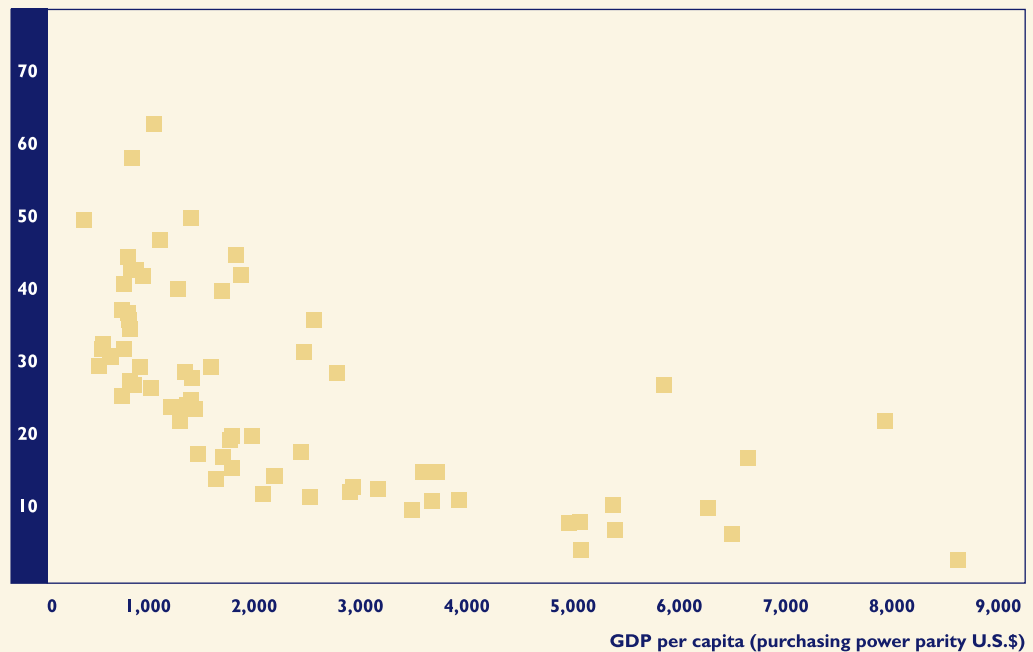
Investments in direct nutrition interventions should also be viewed as investments to fight poverty in the medium term, because reductions in malnutrition will lead to increases in income later on in life. The primary route is thought to be via education. Improved nutrition leads to better developmental levels in infancy, earlier age of school enrollment, better enrollment rates, and better cognitive function. For example, a 10 percent increase in the

stunting of the average Ghanaian child causes a 3.5 percent increase in age of first school enrollment. In Pakistan a relatively small improvement in height-for-age for preschoolers leads, on average, to an increase in subsequent school enrollment rates of 2 percent for boys and 10 percent for girls, increasing to 5 and 16 percent, respectively, when diarrhea rates are reduced by half as well. Better nutrition leads to improved education, which in turn, helps people escape poverty over time, as a recent study of several countries has shown.

Proper nutrition not only boosts household income but income growth at the national level as well. A study by Susan Horton derives conservative estimates of the forgone GDP as a result of just iron deficiency in children and iron, iodine, and protein energy deficiency in adults. For Pakistan the annual losses exceed 4 percent of annual GDP. For Bangladesh the cost of iron deficiency in children alone is nearly 2 percent of GDP.

Figure 2. Malnutrition and GDP per capita in developing countries in the 1990s

Percent of preschoolers with low weight for age



Source: H. Alderman, S. Appleton, L. Haddad, L. Song, and Y. Yohannes, Links between income growth and reductions in malnutrition (World Bank and IFPRI, Washington, D.C., 2000, draft).



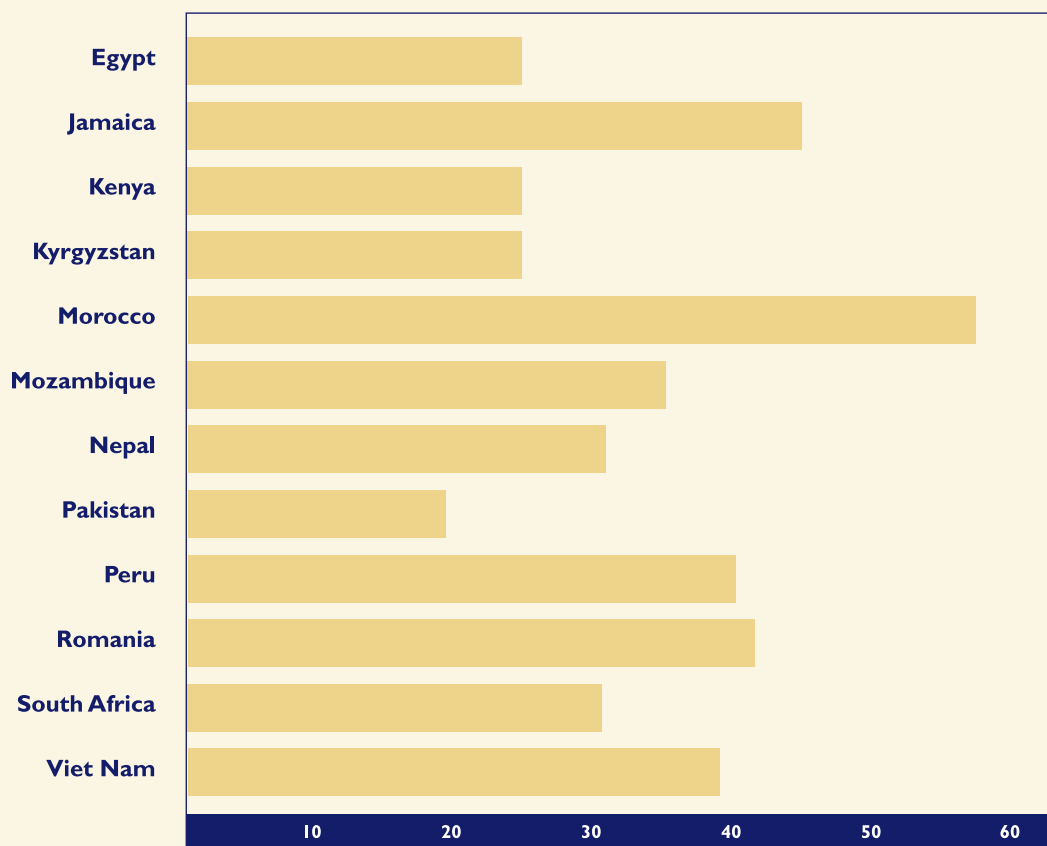
REVERSING A VICIOUS CIRCLE

In the medium to long run, income increases are crucial for reducing malnutrition. But even optimistic increases in income growth will get many countries less than halfway toward the goal of halving malnutrition within the next generation. Moreover, currently income is not growing in several countries. In the shorter run, therefore, direct nutrition interventions are needed. If carried out effectively on a large scale, such interventions will reduce stunting and thereby preserve children's ability to learn in school, be more productive as adults, and be less susceptible later in life to chronic diseases such as cancer and coronary heart disease.

Income affects nutrition, and nutrition in turn affects income. This can be a vicious circle or a virtuous one. Poverty reduction and effective direct nutrition interventions are needed to move us from the vicious to the virtuous.

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Figure 3. Malnutrition and income growth



Source: H. Alderman, S. Appleton, L. Haddad, L. Song, and Y. Yohannes, Links between income growth and reductions in malnutrition (World Bank and IFPRI, Washington, D.C., 2000, draft).

Reduction in the prevalence of low weight for age in preschoolers due to a 5% per capita income growth rate to 2020

Sources

ACC/SCN (United Nations Administrative Committee on Coordination/Sub-Committee on Nutrition). 2000. *Fourth report on the world nutrition situation*. Geneva:ACC/SCN in collaboration with IFPRI.

Alderman, H., J. Behrman, V. Lavy, and R. Menon. 1997. *Child nutrition, child health, and school enrollment*. Policy Research Working Paper 1700. Washington, D.C.:World Bank.

Alderman, H., S. Appleton, L. Haddad, L. Song, and Y. Yohannes. 2000. Links between income growth and reductions in malnutrition. World Bank and IFPRI, Washington, D.C. Draft.

Allen, L., and S. Gillespie. 2000. Options for interventions to improve human nutrition: A review of efficacy and effectiveness. Paper prepared for the Asian Development Bank. IFPRI, Washington, D.C. Draft.

Appleton, S., and L. Song. 1999. Income and human development at the household level: Evidence from 6 countries. Background paper for *World Development Report 2000/01*. Economics Department, University of Bath, U.K.

FAO (Food and Agriculture Organization of the United Nations). 1996. *State of food insecurity in the world*. Rome: FAO.

Glewwe, P., and H. Jacoby. 1995. An economic analysis of delayed primary school enrollment in a low-income country: The role of childhood nutrition. *Review of Economics and Statistics* 77(1):156–169.

Hoddinott, J., and B. Baulch. Forthcoming. Economic mobility and poverty dynamics in developing countries. *Journal of Development Studies*.

Horton, S. 1999. *Opportunities for investments in nutrition in low-income Asia*. Paper prepared for RETA 5671. Manila: Asian Development Bank.

